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ABSTRACT

Results of a review of approximately 60 studies relevant to improving college teaching are considered, and a proposal for a study is presented. The interventions can be classified into four categories: workshops and seminars, grants for faculty projects, feedback from ratings by students, microteaching and minicourses, and protocol materials. It is suggested that although most studies support the intervention in question, much of the research is methodologically flawed and based on an inadequate conceptual foundation. A research program which would deal constructively with some of these problems is briefly outlined. The primary purpose of the research program is to assess the differential impact of two programs for improving college teaching, one based on a conception of teaching as an art and the other based on a conception of teaching as a craft. The program oriented toward teaching as an art is based on the assumption that the essence of teaching lies in the development of a teaching personality and the creation of teaching roles. Graduate teaching fellows, junior faculty, and senior faculty would meet to reflect on teaching and on their own development as teachers, and would visit one another's classes. For a program based on teaching as a craft, participants are likely to draw upon such interventions as microteaching and protocols, and to examine specific teaching skills by viewing videotapes. The research design is briefly outlined. (SW)

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WHY RESEARCH TELLS US SO LITTLE ABOUT INTERVENTIONS TO IMPROVE COLLEGE TEACHING

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At an international conference a few years ago, Popham discussed instructional improvement programs in higher education. He was pessimistic about the level of financial support they command and about the resistance they encounter from faculty. But he spoke optimistically about the knowledge base underlying them. He said that educational researchers "have developed a set of procedures which, albeit incomplete, represent a powerful prescription for improving the instructional decisions faced by every college professor. These deal with mechanisms for selecting more defensible course goals, devising instructional sequences that possess a higher probability of success, creating more adequate examinations, etc." (Popham, 1974, p. 11).

Many activities in recent years have been aimed at assisting faculty to improve their teaching. Our collection of reprints, reports, and evaluations of these activities became so large that we decided a critical review was in order. Our purpose was to document the knowledge base, implied by Popham, which might inform the design of teaching improvement programs in postsecondary education.

It is important to recognize three ways in which we have limited our review. We focus on work with faculty in their <u>teaching</u> role, without denying the importance of the other roles which faculty fill. Second, we review <u>research</u>, not programs, and do not deny the possibility of effective programs which have not been subject to research. Finally, we limit ourselves to studies which provide data <u>beyond simple satisfaction</u> ratings by participants collected at the close of the activity. To meet our criteria, studies must include follow-up data from students or observers as well as from participants.

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We shall briefly describe our conclusions about each of the teaching improvement interventions which have been studied. Then we shall raise several criticisms of this literature as a body of research and propose a study which we feel would be less subject to those defects.

Interventions Which Have Been Researched

Our review discusses the following interventions aimed at improving college teaching: workshops and seminars, grants to faculty for their instructional projects, feedback from ratings by students, microteaching, minicourses, and protocol materials.

For details on the 60 studies critically examined, we refer you to our monograph (Levinson & Menges, 1979). The present discussion must eschew details in favor of a broad summary and discussion of issues.

Workshops and Seminars

Perhaps the most frequent but least carefully evaluated instructional improvement activities are workshops and seminars. A workshop is generally oriented toward inservice faculty and is an occasion for educators to meet with each other and examine attitudes, discuss teaching methods, and practice teaching skills. By seminars, we refer to formal courses for training graduate teaching assistants, prospective faculty, or inservice faculty.

There have been virtually no adequate studies of the impact of workshops. The evidence from evaluations of seminars, however, spans a number of academic fields and suggests that seminar experience can affect teaching classroom behavior and the attitudes of the students of trained teachers. There is also limited evidence for positive impact on achievement of students of trained teachers. Not all of these studies find significant differences and not all studies avoid important threats to validity, but some trends are well worth pursuing. Since these studies are based primarily on graduate teaching assistants, their generalizability is limited. Experienced faculty may be unwilling to volunteer and may strongly resist being assigned to such activities.

Grants for Faculty Projects

This intervention category refers to small grants that are awarded competitively to faculty who propose projects for increasing their teaching effectiveness. Unfortunately, most grant programs are documented only at a descriptive level. For example, reports about grants may tell only what awards were made and for what purpose, or the recipient may prepare an account detailing how the grant was used. The few reported evaluations of granting programs find that participants say they are satisfied, but data are needed also from disinterested sources. It is also necessary to identify innovator characteristics and to determine the impact of grant programs on improving instruction.

Feedback from Ratings by Students

Another frequently described intervention employs student ratings as informational feedback to faculty. Approximately 20 studies have investigated whether mid-term student rating feedback contributes to change in teacher performance as rated by students at the end of a term. Three major themes in this research are a) the impact of written feedback alone, b) the impact of written feedback plus personal consultation, and c) discrepancies between student ratings and instructor self-ratings.

The clearest finding concerns student/instructor rating discrepancies which appear to be an effective predictor of who will benefit from rating feedback. Feedback has its greatest impact on those whose self-ratings are more positive than the ratings made by their students.

The most pressing topic for further research regarding student rating feedback is the relative effectiveness of written feedback alone compared with written feedback plus consultation. Either written feedback alone or written feedback plus consultation has been shown by most studies to be

superior to no feedback. Only three studies directly compared written feedback alone with feedback plus consultation, and only one of them found clear support for consultation as more effective (none found written feedback alone to be more effective). Consultation is an expensive activity. It is important to learn for which faculty it is most useful, and greater attention should be given in this research to instructor variables such as level of motivation.

Microteaching, Protocol Materials, and Minicourses

Several techniques commonly employed in elementary and secondary education have been little used in higher education. These include protocol materials and minicourses. Microteaching also originated in precollege settings but has been adapted for use in colleges. All three techniques seem to us to hold promise for postsecondary education.

Despite important differences among microteaching, protocol materials, and minicourses, they share one common element, cognitive discrimination training. Cognitive discrimination training gives teachers practice in discriminating examples from nonexamples of important teaching concepts or behaviors.

In microteaching, cognitive discrimination training is used as follows. First, a preservice teacher is presented with a behaviorally defined teaching skill. Second, the teacher plans a lesson which incorporates this skill and teaches the lesson to a small group of pupils. Third, the teacher reviews a videotape of that lesson and receives feedback from peers and supervisor. Thus, the teacher is shown the skill to be acquired and discriminates examples and nonexamples from his/her own tape and through group discussion. Fourth, the teacher reteaches the lesson to another small group of students and incorporates feedback suggestions.

Cognitive discrimination training is also a component of protocol materials. Developed for elementary and secondary teachers in training, protocol modules focus on sets of related concepts. For example, the module concerning "teacher-pupil interaction" includes six concepts: reproductive and productive questioning, probing and informing, and approving and disapproving. The modules include written materials and films which describe and illustrate the concepts. Teachers learn to identify and apply the concepts through a sequence of visual illustrations, written exercises and tests. No actual practice outside of written exercises is involved, and for that reason protocols are considered to reflect a concept-based model of teacher education, whereas microteaching reflects a practice-based model.

Both microteaching and protocol materials have been shown to be effective in teacher training. Unfortunately, most microteaching studies have been conducted with elementary and secondary teachers and all protocol materials studies have been conducted at the precollege level. Overall, the microteaching research--approximately nine studies, three of which were conducted at the college level--indicates that this intervention does lead to teacher skill acquisition. For example, microteaching can develop student-centered teaching behavior, increase teacher questioning and reduce lecturing, and increase teacher reinforcement skills. Microteaching has also brought about changes in pupil behavior. For instance, the amount of pupil talk can be increased, and higher-order questioning can be enhanced for both teacher and pupil.

Of considerable interest are the findings of Wagner (1973) who compared discrimination training with microteaching and with conventional student teaching practice. The discrimination training condition did not involve actual teaching practice; teachers were merely trained to discriminate student-centered from teacher-centered teaching comments. Discrimination training alone was found to be effective in bringing about changes not only in concept acquisition

but also in skill acquisition. The findings also suggest that without discrimination training, microteaching may be ineffective. Wagner's findings are particularly important for college instruction. When one considers the lower cost of discrimination training in comparison to microteaching as well as the fact that it might be less threatening to the college teacher, discrimination training may be feasible in faculty improvement programs.

Protocol materials also have been shown to be effective in teacher training across the 10 studies that we located. Teachers and pupils appear to react favorably to the use of protocols. Generally, teachers show significant concept acquisition from protocol training. Furthermore, even though protocol training does not involve direct practice, skill acquisition for some target behaviors has been shown to result from protocol use. Some benefits from protocol use have also been found for pupil behavior and achievement.

To our knowledge, no research has examined the impact of protocols on college teachers and students. Since teachers using protocol materials show increased concept acquisition, colleges interested in this goal might explore the protocol format. Since protocol training requires neither videotaping nor classroom practice, it is less threatening and less disruptive of regular teaching than practice-based activities such as microteaching. It also would be more attractive to instructors who are hesitant about volunteering for practice-based training programs. On the other hand, protocol development is expensive, and it is by no means clear that the existing protocols and the concepts they exemplify are the critical ones for the college classroom.

Finally, we mention minicourses which also involve cognitive discrimination training. Like microteaching, they are practice-based. Developed for the in-service teacher, the minicourse essentially involves learning technical skills of teaching through viewing films of behaviorally defined skills in a specific domain of classroom teaching and practicing those skills within a microteaching

format. The minicourse model allows the teacher gradually to integrate these newly learned skills into the regular classroom.

Research has found the basic minicourse to be highly effective in changing teaching behavior. We have confidence in these findings because the research has been well-designed and appropriately analyzed. Furthermore, the minicourse has been validated under a variety of conditions. For example, it can be used in settings where videotape equipment is not available. Also, minicourse-induced change in instructional effectiveness has been shown to persist over as long as three years.

Although no studies thus far have investigated the effectiveness of the minicourse at the college level, we feel that this effort should be made for two reasons. First, the minicourse has been found to be effective for teacher education in precollege settings, and second, microteaching, a component of the minicourse model, has been used successfully at the college level.

Some Critical Issues

This literature forms a less well defined body of inquiry than we had hoped. Much remains to be done, including work on concepts basic to the research. For example, it would be useful to elaborate systematically the meanings held for the concept, "instruction" or "teaching" (and these two should not be used interchangeably) and to consider the adequacy with which criterion measures embody the concept. In most studies, the criterion measures operationalize "instruction" quite narrowly. Design and analysis problems plague this literature. The work is fragmented since nearly all studies are isolated efforts on a single campus rather than parts of research programs.

We suggest three reasons why this research has not been more fruitful.

1. Different studies have different purposes and these purposes may be incompatible. Some studies were done as evaluation efforts, and others were conceived as formal research. Perhaps it is unfair to treat evaluation reports as research. One critic puts it this way: "The major purpose for research is

the creation of generally applicable knowledge. The major purpose of evaluation is to provide information which rationally weights each of the alternatives in a specific decision situation" (Gephart, 1973, p. 39). The relatively greater situation specificity of evaluation may result in less concern for theory and less attention to related work done elsewhere (Ianni & Orr, 1979).

2. The need for multiple perspectives. Most of these studies view teaching from the perspective either of the student or of the classroom observer, seldom from the perspective of the professor. Elsewhere Mathis (1980) has discussed the challenge for research presented by the multivariate nature of teaching and learning. One set of multiple variables is the data source. Although it increases complexity, studies should include data from teachers, from students, and from observers.

3. The professor is not a black box. Most of the research we reviewed reflects the empirical-analytical paradigm. This paradigm has been said to assume that human behavior has "characteristics which exist independent of and external to the intentions and motives of the people involved in the action" (Popkewitz, Tabachnik, and Zeichner, 1979, p. 52). I expect most of us would not apply that assumption to our own behavior, yet it quite accurately characterizes much of our research. For example, the research on student rating feedback distances the researcher from the participating faculty. Faculty receive a treatment which is expected to produce a change in rated teaching performance. No attempt is made in such research to document the professors' experience when receiving and assessing ratings. We need to know what happens intellectually and emotionally when professors receive ratings, how feedback affects their intentions, and how those intentions are translated into behavior.

The paradigm implicit in this research fails to consider teaching as an intentional process (Menges, 1977). It treats professors almost mindlessly, when in fact their beliefs and intentions are powerful determinants of their responses to teaching improvement opportunities.

A Constructive Suggestion

We have been critical but not unsympathic toward this research. We wish to be constructive critics, and so briefly propose a study which attempts to overcome at least some of the problems common in this literature. The study includes participants with varied characteristics, involves them in collaborative planning of activities, gathers data from multiple sources using multiple methods, and in general compares programs derived from two coherent conceptualizations of the teaching-learning process. The primary purpose of the study is to assess the differential impact of two programs for improving college teaching, one based on a conception of teaching as an art and the other based on a conception of teaching as a craft.

Programs designed to embody these two conceptualizations are developed as the first stage of the project, and participation is solicited from graduate teaching fellows, junior faculty, and senior faculty on a variety of campuses.

The program oriented toward teaching as an art is based on the assumption that the essence of teaching lies in the development of a teaching personality and the creation of teaching roles. This personality and its role performance must meet criteria of consistency and authenticity. Works by Axelrod (1973), Travers and Dillon (1975), and Travers (1979) are pertinent for designing the particulars of such a program. Several likely features may be broadly described. Participants would meet to reflect on teaching and on their own development as teachers. They visit one another's classes and discuss what they see there. They study and discuss writings where teaching is discussed as a performing art. The discourse in this group is likely to be at a relatively high level of abstraction, illustrated by the "teacher as" typology: teacher as expert, as formal authority, as socializing agent, as facilitator, as ego ideal, and as person (Mann, Arnold, Binder, Cytrynbaum, Newman, Ringwald, Ringwald, & Rosenwein, 1970).

For a program based on teaching as a craft, different activities are called for. They are likely to draw upon such interventions as microteaching and protocols. Participants examine specific teaching skills by viewing tapes of teachers who are highly rated by their students on those skills. Each individual chooses one or more skills for personal attention and practices distinguishing examples from nonexamples. Participants imagine themselves in situations calling for each skill and visualize the responses they would make. Finally, they analyze tapes of the classes in which they are attempting to practice the skills.

Some participants choose the program they are to become involved in; others are randomly assigned to a program and blind to the details of the other program. In both programs, some activities are developed with the active collaboration of participants. Pre and post data from a multimethod, multisource design document program activities, the teacher's intentions for their classes, actual classroom behavior, and student perceptions and performance.

Such a project should excite inquiry and increase motivation among participants, in part because participants are more active than the "subjects randomly assigned to treatments" in conventional studies. It permits conclusions about the interaction of programs with teacher and student characteristics. Finally, the cost/benefit analysis which can be derived from the project yields information useful for making subsequent decisions about teaching improvement programs.

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